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EXAMINER	
CHANG, EDITH M	

ART UNIT	PAPER NUMBER
2634	5

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/591,196	OLEYNIK, VLADISLAV A.	
	Examiner	Art Unit	
	Edith M Chang	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12,14-20 and 22-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12,14,18-20,22 and 26-28* is/are rejected.

7)☒ Claim(s) *15-17, 23-25, 29-30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1, 12, and 20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claims 1-11 and 28 are objected to because of the following informalities:

Claims 1-3, in the step (c) the term "the frequency of the signal" in "and multiplying the frequency of the signal by a" should be changed to "the frequency of the intermediate frequency signal" to clearly indicate the signal.

Claim 4, in the step (d) the term "the second power multiplier" is suggested to be changed to "the second multiplier" as recited in the step (c), or the term "a second multiplier" in step (c) is changed to "a second power multiplier".

Claims 23-25, the term "The computer program product of claim 22" lacks antecedence.

Appropriate corrections are required.

3. Claims 22-25 are objected, since claim 22 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 14. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-11, and 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1-3, in the step (b) the regulated oscillators module produces an intermediate frequency signal, in the step (c) a frequency multiplier coupled to the mixer for receiving the intermediate frequency signal and multiplying the frequency of the signal by a fixed multiplication factor, wherein the intermediate frequency signal is provided by the oscillators module from step (b). It is not taught by the drawing (the FIG.7) in the specification where the frequency multiplier does not receive the intermediate frequency signal from the oscillators module.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1,3, 5-6, 9, 11-12, 14, 19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Partyka et al. (US Patent Re.35209) in view of Borth et al. (US Patent 4829543) and Yamamoto (US 5259007).

Regarding **claim 1**, except explicitly specify (1) the quadrature phase modulation and (2) a fixed multiplication factor, Partyka et al. discloses all subject matter claimed: a modulation receiver for a spread spectrum communications system (FIG.5), the receiver comprising: (a) a mixer (552 FIG.5) for mixing a received spread spectrum signal (504 FIG.5) with a heterodyne signal (508 FIG.5) to convert the frequency of the received signal to an intermediate frequency (528 FIG.5), the received spread spectrum signal including a carrier signal modulated by a data signal and being spread by a spreading code (132 FIG.1, column 3 lines 20-25, lines 39-40, lines 63-64, where the data signal is the digital data) ; (b) a regulated oscillators module (558 & 562 FIG.5) coupled to the mixer for producing the heterodyne signal and an intermediate frequency signal (508 FIG.5 the heterodyne signal & 510 FIG.5 the intermediate frequency); (c) a frequency multiplier (558 FIG.5) coupled to the mixer for receiving the intermediate frequency signal, wherein the frequency-multiplied signal has a phase that does not depend on a phase of the data signal (column 10 lines 60-67, where the frequency multiplier takes the narrow band FM signal and does not depend on a phase of the data signal which is a sequence of binary bits being spreaded by a spreading code, or the frequency- multiplied signal (output of 558) based on the PSK modulation signal (Abstract, FIG.1) does not depend on a phase of the data signal); and (d) means (562 FIG.5) for producing an oscillator control signal (545 FIG.5) based on the frequency multiplied signal output from the frequency multiple (508-506-530-570-512/520 FIG.5), wherein

the regulated oscillators module produces the intermediate frequency signal (510 FIG.5) based on the oscillator control signal.

With respect to the quadrature phase modulation, Borth et al. teaches the quadrature phase modulation of BPSK (column 5 lines 60-65, column 9 lines 62-65) in their quadrature receiver for multipath fading channels. As Partyka et al. using BPSK modulation (Abstract), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the Partyka et al.'s receiver as a quadrature receiver where the BPSK is handled (Abstract, column 3 lines 20-25 '209) as Borth taught to demodulate the high speed rate multipath signals.

With respect to the fixed multiplier factor, Yamamoto teaches the fixed multiplier factor (FIG.1, column 3 line 65-column 4 line 5). As Partyka et al. using the frequency synthesizer (558 FIG.5), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the Yamamoto's frequency synthesizer implemented in Partyka et al.'s receiver to have a frequency synthesizer with shortened lock-up time (column 1 lines 65-68).

Regarding **claim 3**, refer the rationale of the claim 1 for the rejection of claim 3, further Yamamoto teaches that the fixed multiplier factor is increased from 1 and 2 and further (column 4 lines 10-23), the factor can be the four to increase the gain of PLL. As Partyka et al. using the frequency synthesizer (558 FIG.5), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the Yamamoto's frequency synthesizer the K set to four implemented in Partyka et al.'s receiver to have a frequency synthesizer with shortened lock-up time (column 1 lines 65-68).

Regarding **claim 5**, Partyka et al. does not specify the VCO in the receiver, however Yamamoto teaches a VCO in a frequency synthesizer. At the time of the invention, it would have

been obvious to a person of ordinary skill in the art to implement the frequency synthesizer taught by Yamaoto in Partyka et al.'s receiver to have a PLL frequency synthesizer with shortened lock-up time (column 1 lines 65-68).

Regarding **claim 6**, Partyka et al. discloses the oscillator (558, 562 FIG.5) is adapted to receive the oscillator control signal (545/512 FIG.5) and produce the output signal (510 FIG.5) based on the control signal.

Regarding **claim 9**, Partyka et al. discloses: (a) a phase discriminator (553 FIG.5) for receiving the signal output from the mixer and the intermediate frequency signal and producing a signal indicative of transmitted data and a spreading code (555 FIG.5); and (b) a demodulator (554 FIG.5; column 10 lines 61-67) for receiving the signal output from the phase discriminator and removing the spreading code.

Regarding **claim 11**, Partyka et al. discloses outputting the signal to a direct sequence spread spectrum demodulator (Abstract, 554 FIG.5, column 10 line 55-column 11 line 6).

Regarding **claim 12**, except explicitly specify (1) the quadrature phase modulation and (2) a fixed multiplication factor, Partyka et al. discloses all subject matter claimed: the method (a) receiving a quadrature phase modulated spread spectrum signal (548-502-550-504 FIG.5); (b) mixing the quadrature phase modulated spread spectrum signal with a heterodyne signal to produce an intermediate frequency signal (578 FIG.5); (c) removing the influence of data changes in the quadrature phase modulated spread spectrum signal from the intermediate frequency signal to produce an oscillator control signal (569-568-520-545 FIG.5, column 10 lines 20-25), wherein removing the influence of data changes in the quadrature phase modulated spread spectrum signal from the intermediate frequency signal includes multiplying a frequency

of the intermediate frequency signal (the IF frequency is multiplied by a factor in synthesizer 558 and 561 before mixed to the data signal to create a narrow band FM signal, column 10 lines 60-65); (d) generating a synchronization signal based on the oscillator control signal (545-508-506 FIG.5, where 545/578 is the oscillator control signal, the 508/514 is the generated synchronizatin signal); and (e) demodulating the quadrature phase modulated spread spectrum signal using the synchronization signal (506, 554 FIG.5).

With respect to (1) the quadrature phase modulation, Borth et al. teach the quadrature phase modulation of BPSK (column 5 lines 60-65, column 9 lines 62-65) in their quadrature receiver for multipath fading channels. As Partyka et al. using BPSK modulation (Abstract), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the Partyka et al.'s receiver as a quadrature receiver where the BPSK is handled (Abstract, column 3 lines 20-25 '209) as Borth taught to demodulate the high speed rate multipath signals.

With respect to the fixed multiplier factor, Yamamoto teaches the fixed multiplier factor (FIG.1, column 3 line 65-column 4 line 5). As Partyka et al. using the frequency synthesizer (558 FIG.5), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the Yamamoto's frequency synthesizer implemented in Partyka et al.'s receiver to have a frequency synthesizer with shortened lock-up time (column 1 lines 65-68).

Regarding **claims 14 & 22**, refer to the rationale of the rejection of claim 3 for the steps (a) to (c), for the step Partyka et al. discloses (d) generating a synchronization signal based on the oscillator control signal (545-508-506 FIG.5, where 545/578 is the oscillator control signal, the 508/514 is the generated synchronizatin signal); and (e) demodulating the quadrature phase modulated spread spectrum signal using the synchronization signal (506, 554 FIG.5).

Regarding **claim 19**, Partyka et al. discloses outputting the signal to a direct sequence spread spectrum demodulator (Abstract, 554 FIG.5, column 10 line 55-column 11 line 6).

8. Claims 10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Partyka et al. (US Patent Re.35209) in view of Borth et al. (US Patent 4829543) as applied to claims 9, 12 above, and further in view of Saleh et al. (US patent 5048057).

Regarding **claim 10, 18**, Borth et al.'s quadrature receiver is for TDMA, however Borth et al. does not specify the frequency hopping techniques which are well known in the TDMA. Saleh et al. teaches the frequency hopping demodulator (FIG.2). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the frequency hopping techniques of the frequency hopping demodulator taught by Saleh et al. in the demodulator of Partyka's receiver such that Partyka's receiver to have an efficient frequency hopping spread spectrum demodulator (column 1 line 65- column 2 line 8).

9. Claims 20, 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Partyka et al. (US Patent Re.35209) in view of Borth et al. (US Patent 4829543) and Saleh et al. (US patent 5048057).

Regarding **claim 20**, except specify the computer program, Partyka et al. discloses all subject matter claimed stated in the rejection of claim 12. However Saleh et al. teaches a computer program for performing the receiver functions (column 12 lines 45-50). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the

computer program taught by Saleh et al. to implement the Partyka et al.'s receiver function to have a flexible and portable receiver.

Regarding **claim 26**, Borth et al.'s quadrature receiver is for TDMA, however Borth et al. does not specify the frequency hopping techniques which are well known in the TDMA. Saleh et al. teaches the frequency hopping demodulator (FIG.2). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the frequency hopping techniques of the frequency hopping demodulator taught by Saleh et al. in the demodulator of Partyka's receiver such that Partyka's receiver to have an efficient frequency hopping spread spectrum demodulator (column 1 line 65- column 2 line 8).

Regarding **claim 27**, Partyka et al. further discloses outputting the signal to a direct sequence spread spectrum demodulator (Abstract, 554 FIG.5, column 10 line 55-column 11 line 6).

Allowable Subject Matter

10. Claims 15-17, 23-25 and 29-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim and overcome the claim objections stated in the paragraphs 2 and 3.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Chang whose telephone number is 703-305-3416. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4800.

Edith Chang
January 26, 2004

CHIEH M. FAN
PRIMARY EXAMINER